Chapter 6

References and Glossary

6.1 REFERENCES

Agee, J.K. 1993. Fire Ecology of Pacific Northwest Forests. Island Press. Washington, D.C.

Anderson, H.W., M. D. Hoover and K. G. Reinhart. 1976. Forests and Water: Effects of Forest Management on Floods, Sedimentation, and Water Supply. Gen. Tech. Rep. PSW-18. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station. Berkeley, CA: U.S. pp. 115

Andrews, B. 2004. DRAFT: Vegetative Treatments and their Potential Effects to Cultural Resources. Uncompahgre Plateau Study Project, Contract No. UPSP03-01. Report on file at Bureau of Land Management, Durango Field Office. Durango, CO.

Arno, S. 2000. Fire in Western Forest Ecosystems. IN: Brown, J. and Kapler-Smith, J. eds. Wildland Fire in Ecosystems: Effects of Fire on Flora. Gen. Tech. Rep. RMRS-GTR-42-vol. 2. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station: Ogden, UT: pp. 97-120.

Arno, S. and R. H. Wakimoto. 1987. Fire Ecology of Vegetation Common to Wildland Home Sites. IN: Symposium and Workshop on Protecting People and Homes from Wildfire in the Interior West. October 6-8, 1987. Missoula, MT, pp. 118-123.

Atwood, D. et al. 1991. Utah Threatened, Endangered, and Sensitive Plant Field Guide. USFS, NPS, BLM, UNHP, USFWS, EPA, Navajo Nation, and Skull Valley Goshute Tribe

Baskin, R. et al. 2002. Water-Quality Assessment of the Great Salt Lake Basins, Utah, Idaho, and Wyoming—Environmental Setting and Study Design. Water-Resources Investigations Report 02-4115. U.S. Geological Survey. pp. 47

Beaton, J. D. 1959. The Influence of Burning on Soil in the Timber Range Area of Lac le Jeune, British Columbia. II. Chemical properties. Canadian Journal of Soil Science 39: 6-11.

Belnap, et al. 2003. Biological Crusts: Structure, Function, and Management. Springer. New York.

Belsky, A. J. and J. L. Gelbard. 2000. Livestock Grazing and Weed Invasions in the Arid West (Oregon Natural Desert Association). Available at http://www.onda.org/library/papers/WeedReport.pdf. [Accessed Sept 14,2003]

Biological and Conservation Database. 2002. Utah Division of Wildlife Resources, The Nature Conservancy, and NatureServe.

Blackburn, T.C. and M.K. Anderson. 1993. eds. IN: Before the Wilderness: Environmental Management by Native Californians. Anthropological Papers No. 40. Ballena Press, Menlo Park, CA.

Blaisdell, J. P., R. B. Murray and E. D. McArthur. 1982. Managing Intermountain Rangelands - Sagebrush-Grass Ranges. USDA, For. Serv. Gen. Tech. Rep. INT-134. Intermountain Forest and Range Experimental Station, Ogden, UT. pp. 41

BLM. 1991. Final Environmental Impact Statement, Vegetation Treatment on BLM Lands in Thirteen Western States. Wyoming State Office. May 1991.

BLM. 1998. Utah Weed Program. Available from: http://www.blm.gov/utah/resources/weeds. [Accessed Aug 12, 2004]

BLM. 1999a. Grand Staircase-Escalante National Monument Management Plan. BLM, Grand Staircase-Escalante National Monument, Cedar City, Utah. 111 pages plus maps.

BLM. 1999b. Utah Wilderness Inventory.

BLM. 1999c. St. George Resource Management Plan.

BLM. 2000a. Technical Reference 1734-6.

BLM. 2000b. Utah BLM, BLM Facts and Figures 2000. Available from: http://www.ut.blm.gov/FactsFigures/FactsFigures00/ff29.html. [Accessed Aug 10, 2004]

BLM. 2001. Utah Statewide Fire Assessment Project. Utah State Office, July 31, 2001. Salt Lake City, Utah.

BLM. 2003a. Utah Wilderness Inventory Revision Documents for Moab.

BLM. 2003b. Utah Wilderness Inventory Revision Documents for Monticello.

BLM. 2003c. Forest and Woodland Management Action Plan. October 1, 2003.

BLM. 2004a. Utah BLM, BLM Recreation Sites. Available from: http://www.ut.blm.gov/Recreation/recsites.html. [Accessed December 15, 2004].

BLM. 2004b. Wild & Scenic Rivers. Available from: http://www.ut.blm.gov/wildandscenicrivers/index.htm. [Accessed July 23, 2004].

BLM. 2004c. Wilderness Study Areas. Available from: http://www.blm.gov/utah/moab/wsa.html. [Accessed August 6, 2004].

BLM. 2004d. Utah Wilderness, Questions & Answers Regarding Wilderness Study Areas. Available from: http://www.ut.blm.gov/utahwilderness/qandas.htm. [Accessed July 12, 2004].

BLM. 2004e. BLM, Grand Staircase-Escalante National Monument, Visitor Information. Available from: http//www.utblm.gov/monument/. [Accessed August 9, 2004].

BLM. 2004f. Scenic Byways. Available from:

http://www.ut.blm.gov/Recreation/scenicbyways.html. [Accessed August 9, 2004].

BLM. 2004g. Geographic Information System. Unpublished data. BLM, Utah State Office, Salt Lake City, Utah.

BLM. 2004h. NLCS Summary Tables, National Scenic and Historic Trails by State as of September 30, 2003. Available from: http://www.blm.gov/nlcs/summary_tables.htm. [Accessed August 10, 2004].

BLM. 2004i. ACECs—Utah's Special Places. Utah ACECs. Available from: http://www.ut.blm.gov/acec/utah_acec.htm. [Accessed August 10, 2004].

BLM. 2004j. Wild & Scenic Rivers. Existing Planning Decisions—Wild and Scenic Rivers. Available from: http://www.ut.blm.gov/wildandscenicrivers/existingdecisions.htm. [Accessed August 10, 2004].

BLM. 2004k. Places to Play (Richfield Field Office). Available from: http://www.ut.blm.gov/richfield/play.html. [Accessed August 11, 2004].

BLM. 2004l. Wild and Scenic Rivers. Existing Planning Decisions - Wild and Scenic Rivers. Available from: http://www.ut.blm.gov/wildandscenicrivers/existingdecisions.htm. [Accessed September 23, 2004].

BLM. 2004m. Price Field Office Draft Resource Management Plan and Environmental Impact Statement, Appendix 3 - Wild and Scenic Rivers Study Process. Available from: http://www.pricermp.com/documents/Appendicies/Appendix_3-Wild_&_Scenic_Rivers.pdf. [Accessed September 23, 2004].

BLM. 2004n. San Rafael Final Resource Management Plan. BLM, San Rafael Resource Area, Moab District, Utah. Available from: http://www.ut.blm.gov/planning/OTHERS/SRARMP-ROD%20MAY%201991.PDF. [Accessed September 23, 2004].

BLM. 2004o. San Juan Resource Management Plan - Proposed Resource Management Plan/Final Environmental Impact Statement, Volume I. BLM, San Juan Resource Area, Moab District, Utah. September 1987. Available from: http://www.ut.blm.gov/planning/SJFEISVI.PDF. [Accessed September 23, 2004].

BLM. 2004p. St. George Field Office (formerly the Dixie Resource Area) Record of Decision and Resource Management Plan. BLM, Utah State Office. March 1999. Available from: http://www.ut.blm.gov/planning/STGEORGE/STGEOROD.PDF. [Accessed September 23, 2004].

BLM. 2004q. Dixie Resource Area Proposed Resource Management Plan/Final Environmental Impact Statement. BLM, Cedar City District Office. September 1998. Available from: http://www.ut.blm.gov/planning/STGEORGE/DIXIEEIS.PDF. [Accessed September 23, 2004].

BLM. 2004r. Utah BLM, Facts and Figures 2000, National Natural Landmarks. Available from: http://www.ut.blm.gov/FactsFigures/FactsFigures00/ff23.html. [Accessed September 23, 2004].

BLM. 2004s. Grand Staircase - Escalante National Monument, Draft Management Plan/Draft Environmental Impact Statement. BLM, Grand Staircase-Escalante National Monument. November 1998. Available from: http://www.ut.blm.gov/monument/Monument_Management/intial%20planning/deis/deis.html. [Accessed October 7, 2004].

BLM. 2004t. Grand Staircase-Escalante National Monument, Proposed Management Plan/Final Environmental Impact Statement. BLM, Grand Staircase-Escalante National Monument. July 1999. Available from: http://www.ut.blm.gov/monument/Monument_Management/initial%20planning/feis/chapter_2/feis_2_K.html. [Accessed October 7, 2004].

BLM. 2004u. House Range Resource Area Resource Management Plan and Record of Decision, Rangeland Program Summary. BLM, Richfield District. October 1987. Available from: http://www.ut.blm.gov/planning/HOUSERODRPS.PDF. [Accessed October 7, 2004].

BLM. 2004v. Utah Wilderness, Utah Wilderness Review. Available from: http://www.ut.blm.gov/utahwilderness/utwilreview.htm. [Accessed August 6, 2004].

BLM. 2004w. Utah NEPA Guidebook. Available from http://www.ut.blm.gov/landuseplanning/NEPAguidance.htm [Accessed May 2004]

BLM. 2004x. Draft Land Use Planning Handbook Revision. BLM Handbook H-1601-1

BLM. 2004y. Manual H-8410-1. Visual Resource Inventory. Available from: http://www.blm.gov/nstc/VRM/8410.html. Accessed December 22, 2004.

BLM. 2005. Biological Assessment for the Proposed Action Utah Statewide Land Use Plan Amendment for Fire and Fuels Management (EA-USO-040-0) and Salt Lake (UT-020-2004-0091), Richfield (UT-050-04-045), Moab (UT-063-04-02 & UT-060-2005-042), Southern Utah (UT-040-04-054), and Vernal(UT-080-2004-0430) Support Centers Fire Management Plans.

Bowers, J. E. 1993. Shrubs and Trees of the Southwest Deserts. Southwest Parks and Monuments Association.

Bradley, A. F., N. V. Noste, and W. C. Fischer. 1992. Fire Ecology of Forests and Woodlands in Utah. Gen. Tech. Rep. INT-287. Ogden, UT: U. S. Department of Agriculture, Forest Service, Intermountain Research Station.

Brockway, D.G., R. G. Gatewood, and R. B. Paris. 2002. Restoring Grassland Savannas from Degraded Pinyon-Juniper Woodlands: Effects of Mechanical Overstory Reduction and Slash Treatment Alternatives. J. Environ. Manage. 64, pp 179-197.

Brookshire et al. 1981. The Benefits of Preserving Visibility in the National Parklands of the Southwest. Vol. VIII. Methods Development for Environmental Control Benefits Assessment. Report prepared for the U.S. EPA, Washington

Brown, J. K. 2000. Chapter 9: Ecological Principles, Shifting Fire Regimes and Management Considerations. Pp 185-203. IN: Brown, James K., J. Smith, and J. Kapler eds. 2000. Wildland fire in ecosystems: effects of fire on flora. Gen. Tech. Rep. RMS-GTR-42-Vol.2. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.

Brown, J.K., R.W. Mutch, C.W. Spoon, and R.H. Wakimoto, Technical Coordinators. 1995. IN: Proceedings: Symposium on Fire in Wilderness and Park Management; March 30-April 1, 1993;

Missoula, MT. Gen. Tech. Rep. INT-GTR-320. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station.

Buenger, B. 2003. The Impact of Wildland and Prescribed Fire on Archaeological Resources. Dissertation. Submitted to the Department of Anthropology, University of Kansas. http://www.blm.gov/heritage/docum/Fire/Dissertation_Buenger.htm.

Buffington, L. C. and C. H. Herbel. 1965. Vegetational Changes on a Semidesert Grassland Range from 1858 to 1963. Ecological Monographs 35: 139-164.

Bunting, S. C., B. M. Kilgore, and C. L. Bushey. 1987. Guidelines for Prescribed Burning Sagebrush-Grass Rangelands in the Northern Great Basin. USDA, For. Serv. Gen. Tech. Rep. INT-231. Intermt. Res. Sta., Ogden, UT. Page 33.

Burden, C. B. et al. 2003. Ground-Water Conditions in Utah, Spring 2003. Geological Survey. Utah Division of Water Resources. Utah Division of Water Rights. Cooperative Investigations Report No. 44.

Burkhardt, J. W. and E. W. Tisdale. 1976. Causes of Juniper Invasion in Southwestern Idaho. Ecology 57. pp. 472-484.

Burt, W.H. and R.P. Gossenheider. 1980. A Field Guide to Mammals. Houghton Mifflin Company, Boston, Mass.

Callison, J. et al. 1985. The Effects of Fire on the Blackbrush (*Coleogyne ramosissima*) Community of Southwest Utah. J. Range Manage.
38(6): pp. 56-60.

Chalmers, S. R. and B. R. Harsough. 2001. Thinning and Prescribed Fire as Methods to Reduce Fuel Loading—a Cost Analysis. In: Thinnings, A Valuable Forest Management tool. An International Conference (CD-ROM). Sept. 9—14, 2001. Forest Engineering Research Institute of Canada. Quebec City.

Chapman, J.A. and G.A. Feldhamer. 1982. Wild Mammals of North America. The John Hopkins University Press, Baltimore, Maryland.

Cleaves, D. A. and J. D. Brodie. 1990. Economic Analysis of Prescribed Burning. IN: J. D. Walstad and Others, eds. Natural and Prescribed Fire in Pacific Northwest Forests. Oregon State University Press, Corvallis, OR. pp. 271– 282

Connelly, J. W., M. A. Schroeder, A. R. Sands, and C. E. Braun. 2000. Guidelines to Manage Sage Grouse and their Habitats. Wildlife Society Bulletin 28(4): 967-985.

Covington, W.W. and M.M. Moore. 1992. Postsettlement Changes in Natural Fire Regimes: Implications for Restoration of Old Growth Ponderosa Pine Forests. Pages 81-99 IN: Kaufmann, Merril R., W.H. Moir, and R.L. Bassett, tech. coord. Old-Growth Forests in the Southwest and Rocky Mountain Regions. Gen. Tech. Rep. RM-GTR-213. Fort Collins, CO: U.S. Dept. of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. Page 201.

Cronquist, A., A. H. Holmgren et al. 1986. Intermountain Flora: Vascular Plants of the Intermountain West, U.S.A. Vol. 1. The New York Botanical Garden. New York:

Deal, K. No Date. Fire Effects to Flaked Stone, Ground Stone, and Other Stone Artifacts (DRAFT). IN: Kevin C. Ryan and Anne Trinkle Jones, editors. Wildland Fire in Ecosystems: Effects of Fire on Cultural Resources and Archeology. Rainbow Series, Rocky Mountain Research Station, USDA Forest Service. In press.

DeBano, L.F.; D. G. Neary; and P. F. Folliott. 1998. Fire's Effects on Ecosystems. John Wiley & Sons. New York: Page 333.

DeBano, L. F., S. M. Savage, and D. M. Hamilton. 1976. The Transfer of Heat and Hydrophobic Substances During Burning. Soil Science Society of America Journal 40:779-782.

Demographic and Economic Analysis—Governor's Office of Planning and Budget—State of Utah—2002 Baseline Economic and Demographic Projections. Available from: http://governor.utah.gov/dea/LongTermProjections.html. [Accessed Sept 27,2004]

Department of Water Quality. 2002. Utah Water Quality Assessment Report to Congress (305(b) report). [Online]. Available from: http://waterquality.utah.gov/. [Accessed August 2004].

Dohahue, D. L., 2001. Available from: http://www.deserttortoise.org/abstract/abstracts2001/2001abs14.html. [Accessed Sept 10,2004]

DOI. U.S. Department of the Interior and U.S. Department of Agriculture, 2001. "Urban Wildland Interface Communities Within the Vicinity of Federal Land That Are at High Risk from Wildfire; Notice". Federal Register, Vol. 66, No. 160, August 17, 2001, pp. 43384-43435.

Edwards, T.C., et al. 1998. Utah GAP Analysis: An Environmental Information System. Utah State University, Logan, Utah. Year listed—1998.

EPA. 1992. Memorandum: Clarification on Prevention of Significant Deterioration (PSD) Guidance for Modeling Class I Area Impacts. John S. Seitz, Director; Office of Air Quality Planning and Standards (MD-10), October 19.

EPA. 2002. List of 156 Mandatory Class 1 Federal Areas. Available from: http://www.epa.gov/oar/vis/class1.html. [Accessed August 12, 2004].

Federal Wildland Fire Management Policy. 1995. U.S. Department of Agriculture and U.S. Department of the Interior, Washington, DC. Amended in 1991.

FEIS (Fire Effects Information System). 2004. [Online]. U. S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available from: http://www.fs.fed.us/database/feis/ [Accessed Sept 2,2004]

FHWA (US Department of Transportation, Federal Highway Administration). 2004. America's Byways, Utah. Available from: http:// www.byways.org/browse/states/UT/. [Accessed August 9, 2004].

Fielding, D. J., M.A. Brusven et al. 2000. Grasshopper habitat manipulation. United States Department of Agriculture, Animal and Plant Health Inspection Service, Grasshopper Integrated Pest Management User Handbook Technical Bulletin No. 1809, Washington, D.C. p.VII.15-1-VII.15-5.

Fitzgerald, J.P., C.A. Meaney, and D.M. Armstrong. 1994. Mammals of Colorado. Denver Museum of Natural History, and University Press of Colorado. Denver, Colorado.

Fuller, W., W. H. Fuller, S. Shannon, and P. S. Burgess. 1955. Effect of Burning on Certain Forest Soils of Northern Arizona. Forest Science 1: 44 50.

Garcia, Suzanne. 2004. Recreation Program Lead, Utah BLM. Personal communication via email with Tetra Tech FW, Inc., December 8, 2004.

Garwood, A. N. (ed.), 1996. Weather America. Toucan Valley Publications, Inc.; Milpitas, CA; pp. 1217-1249.

Goodrich, S. and B. Barber. 1999. Return Interval for Pinyon-Juniper Following Fire in the Green River Corridor, Near Dutch John, Utah. IN: Monsen, S. B., and R. Stevens eds. Proceedings of the Ecology and Management of Pinyon-juniper Communities Within the Interior West. USDA Forest Service Proceedings RMRS-P-9. Rocky Mountain Research Station, Fort Collins, CO, pp. 391-393.

Greer, D. C. et al. 1981. Atlas of Utah. (Project Director) Weber State College, Brigham Young University Press, Provo, Utah.

Gruell, G. E. and L. L. Loope. 1974. Relationships Among Aspen, Fire, and Ungulate Browsing in Jackson Hole, Wyoming. Lakewood, CO: U.S. Department of the Interior, National Park Service, Rocky Mountain Region. 33 p. In cooperation with: U.S. Department of Agriculture, Forest Service, Intermountain Region.

Hadley, H. 2004. Personal communication via e-mail with Stephanie Phippen at Tetra Tech FW, Inc.

Haecker, C. No Date. Fire Effects on Materials of the Historic Period (DRAFT). IN: Kevin C. Ryan and Anne Trinkle Jones, eds. Wildland Fire in Ecosystems: Effects of Fire on Cultural Resources and Archeology. Rainbow Series, Rocky Mountain Research Station, USDA Forest Service. In press.

Hanes, R. 2001. Fire Effects Guide: Cultural Resources. National Wildfire Coordinating Group. Available from: http://fire.fws.gov/ifcc/monitor/EFGuide/cultural_resources.htm.

Hansen, P.L., R. D. Pfister, K. Boggs, B. J. Cook, J. Joy, and D.K. Hinckley. 1995. Classification and Management of Montana's Riparian and Wetland Sites. Montana Forest and Conservation Experiment Station Miscellaneous Publication No. 54. University of Montana, School of Forestry. 646 pp.

Harniss, R.O., and R.B. Murray. 1973. Thirty Years of Vegetal Change Following Burning of Sagebrush-Grass Range. J. Range Manage. 26:322-325.

Harrison, R. D., B. L. Waldron, K. B. Jensen, and others. 2002. Forage Kochia Helps Fight Range Fires. Rangelands

Heyerdahl, E. K., P. M. Brown, and S. G. Kitchen. 2004. Fire Regimes and Forest Structure Across Landscapes of Utah: A Multiscale History from Tree Rings. A Progress Report for the Bureau of Land Management.

Higdon, M. 2004. Personal Communication. Land Use Planner, Utah BLM with Maxim Technologies. Salt Lake City, Utah.

Houston, D. B. 1973. Wildfires in Northern Yellowstone National Park. Ecology 54:1111-1117.

Howard, J. L. 2003. *Pinus ponderosa var. scopulorum*. In: Fire Effects Information System, (FEIS). U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available from: http: / / www.fs.fed.us / database / feis /plants/tree/pinpons/fire_effects.html/. [Accessed October 12,2004]

Howery, L.D. and G.B. Ruyle. 2002. Noxious Weeds: A Disaster Looking for a Place to Happen in Arizona. Available from:http://rangelandswest.org/

Jones, J. R. and N. V. DeByle. 1985. Fire, p 77-81, IN: N. V. DeByle and R. P. Winokur, eds. Aspen: Ecology and Management in Western United States. General Technical Report RM-119, USDA Forest Service, Rocky Mountain Forest and Range Experiment Station, Fort Collins, CO. Page 283.

Kay, Charles E. 2002. A Photographic History of Vegetation and Stream Channel Changes in San Juan County, Utah. Available from: http://extension.usu.edu/rra

Kay, Charles E. 2003. Long-Term Vegetation Change on Utah's Fishlake National Forest: A Study in Repeat Photography. Available from: http://extension.usu.edu/rra

Kelly, R. and D. F. McCarthy. 2001. Effects of Fire on Rock Art. IN: Steven Freers and Alanah Woody, eds. American Indian Rock Art. Vol. 27, pp 169-176.

Keyes, C., P., R. L. LaMadeleine, V. Applegate, and D. Atkins. 2003. Utah Forest Health Report: A Baseline Assessment, 1999/2001. USFS Rocky Mountain Research Station, Forest Health Protection, Forest Health Monitoring, State of Utah Dept. of Natural Resources, Div. Of Forestry, Fire and State Lands, January 2003, Salt Lake City, UT.

Kitchen, S. 2004. Kitchen, eds. IN: Proceedings: Ecology and Management of Annual Rangelands. General Technical Report INT-GTR-313, USDA Forest Service, Intermountain Research Station, Ogden, Utah.

Knight, D. H. 1994. Mountains and Plains: The Ecology of Wyoming Landscapes. Yale University Press. 338 p.

Kovacic, D., W. Romme, and D. Despain. 1990. Landscape Dynamics of Yellowstone National Park: The Role of Fire 1690 to 1990, Media Services and NCSA, Available from: http://archive.ncsa.uiuc.edu/scms/DigLib/text/geosciences/Landscape-Dynamics-Yellowstone-kovacic.html. [Accessed October 6, 2004]

Krueper, D. J. 1992. Effects of Land Use Practices on Western Riparian Ecosystems. IN: D.M. Finch and P.W. Stangel, eds. Status and Management of Neotropical Migratory Birds. USDA Forest Service General Technical Report RM-229. Pp. 321-330

Lanner, R. 1984. Trees of the Great Basin. University of Nevada, Reno Press. Reno, NV.

Limbach, E. 2004. Personal Communication. Range Management Specialist for the Burley and Pocatello Field Offices of the BLM with Bruce Glisson.

Loyd, J. M. et al. 2002. eds. IN: The Effects of Fire and Heat on Obsidian. Bureau of Land Management, Cultural Resources Publication, Bishop Field Office, California

McAuliffe, J. R. 1995. Landscape Evolution, Soil Formation and Arizona's Desert grasslands. IN: M. McClaran and T. R. V. Devender (eds.) The Desert Grassland. University of Arizona Press, Tucson. 68-129 p

Menakis J. P., D. Osborne, and M. Miller. 2003. Mapping the cheatgrass-caused departure from historical natural fire regimes in the Great Basin, USA. USDA Forest Service Proceedings RMRS-P-29.

Mermejo, D. 2004a,b,c. Personal communication. Wilderness Specialist for the Utah State Office of the BLM with Angie Nelson, Environmental Planner, Tetra Tech, Inc., August 20, 2004 (a). August 23, 2004 (b). October 4, 2004 (c).

Miller, R. 2002. The Role of Fire Across the Sagebrush Biome. From: Restoration and Management of Sagebrush/grass Communities Workshop. Elko, NV. November 4-8, 2002.

Miller, R. F. and J. A. Rose. 1999. Fire History and Western Juniper Encroachment in Sagebrush Steppe. J. Range Manage. 52:550-559.

Miller, R. F. and P. E. Wigand. 1994. Holocene Changes in Semi-Arid Pinyon-Juniper Woodlands: Response to Climate, Fire, and Human Activities in the U. S. Great Basin. BioScience 44:465-474.

Miller, R. F. and R. J. Tausch. 2001. The Role of Fire in Juniper and Pinyon Woodlands: A Descriptive Analysis. Tall Timbers Research Station Miscellaneous Publication No. 11: 15-30.

Miller, R. F., C. Baisan, J. A. Rose, and D. Pacioretty. 2001. Pre- and Post-Settlement Fire Regimes in Mountain Big Sagebrush Steppe and Aspen: The Northwestern Great Basin. Final Report to the National Interagency Fire Center, 3833 S. Development Avenue, Boise Idaho.

Monsen, S.B., R. Stevens, and N.L. Shaw. 2004. Restoring Western Ranges and Wildlands. General Tech. Rep. RMRS-GTR-136-Volume 1-3. Fort Collins, CO. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. Pages 1- 884, plus appendices and index.

Mueggler, W. F. 1989. Age Distribution and Reproduction of Intermountain Aspen Stands. Western Journal of Applied Forestry 4(2):41-45.

Mutch, R. 1970. Wildland Fires and Ecosystems a Hypothesis. Ecology 51: 10461051.

National Interagency Fire Center. Available from: http://www.nifc.gov/stats/wildlandfirestats.html. [Accessed August 12, 2004]

Not available. 1995. Ecosystem Analysis at the Watershed Scale – Federal Guide for Watershed Analysis, Revised August 1995.

NPS. (National Park Service). 2000. Lake Roosevelt National Recreation Area Fire Management Plan Environmental Assessment. Available from: http://data2.itc.nps.gov/parks/laro/ppdocuments/fire management.htm#4.0

NPS. (National Park Service). 2004. National Trails System, Visit the Trails, List of National Scenic and Historic Trails. Available from: http://www.nps.gov/nts/nts_trails.html. [Accessed August 6, 2004].

NWCGa. (National Wildfire Coordination Group). June 2001. Fire Effects Guide. NFES 2394. National Interagency Fire Center, Boise, ID.

NWCGb. (National Wildfire Coordination Group). December 2001. Smoke Management Guide for Prescribed and Wildland Fire. NFES 1279. National Interagency Fire Center, Boise, ID.

O'Brien, R. et al. 1999. Description of Pinyon-Juniper and Juniper Woodlands in Utah and Nevada from an Inventory Perspective. IN: Proceedings: Ecology and Management of Pinyon-Juniper Communities Within the Interior West. Rocky Mountain Research Station. RMRS-P-9. p55.

Oster, E. No Date. The Effects of Fire on Subsurface Archeological Materials (DRAFT). Kevin C. Ryan and Anne Trinkle Jones. Eds. IN: Wildland Fire in Ecosystems: Effects of Fire on Cultural Resources and Archeology. Rainbow Series, Rocky Mountain Research Station, USDA Forest Service. IN press.

Paige, C. and S. A. Ritter. 1999. Birds in a Sagebrush Sea-Managing Sagebrush Habitats for Bird communities. Partners in Flight-Best Management Practices. Boise, ID 51p.

Parrish, J., F. Howe, R. Norvell. 2002. Utah Partners in Flight Avian Conservation Strategy Version 2.0 Utah Partners in Flight Program, Utah Division of Wildlife Resources (UDWR) Publication Number 02-27, 1594 West North Temple, Salt Lake City, UT. 302 p.

Paysen, T. E., R. J. Ansley, J. K. Brown et al. 2000. Pp. 121-159. IN: Brown, James K., and Jane Kapler Smith, eds. Wildland fire in ecosystems: effects of fire on flora. Gen. Tech. Rep. RMRS-GTR-42-vol. 2. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 257p.

Pellant, M. 2002. Cheatgrass: Invasion, Occurrence, Biological/Competitive Features and Control Measures. From: Restoration and Management of Sagebrush/grass Communities Workshop, Elko, NV, November 4-8, 2002.

Peters, E. F. and S. C. Bunting. 1994. Fire Conditions Pre- and Post-Occurrence of Annual Grasses on the Snake River Plain. Pp. 31-36 IN: S. B. Monson and S. G. Kitchen, eds. Proceedings – Ecology and Management of Annual Rangelands. USDA For. Ser. Gen. Tech. Rep. INT-GTR-313. Ogden, UT.

Pollet, J. 2004. Personal communication. Fire Ecologist, Utah BLM with Maxim Technologies. Salt Lake City, Utah.

Pope, D. and C. Brough (eds.), 1996. Utah's Weather and Climate. Publishers Press; Salt Lake City, UT.

Population, Employment, Earnings, and Personal Income Trends, Sonoran Institute, Economic Profiling System.

Pyke, D.A. and S.J. Novak. 1994. Cheatgrass Demography - Establishment Attributes, Recruitment, Ecotypes, and Genetic Variability. IN Monsen, S. B., and S.G. Kitchen (comps.). Proceedings–Ecology and Management of Annual Rangelands. May 18-21, 1992. INT-GTR-313. USDA Forest Service, Boise, ID. Pp 12-21.

Pyne, S. J. 1982. Fire in America: A Cultural History of Wildland and Rural Fire. University of Washington Press, Seattle.

Pyne, S. J., P.L. Andrews, and R. D. Laven. 1996. Introduction to Wildland Fire. Second edition. Wiley, New York.

Ralston, C. W. and G. E. Hatchell. 1971. Effects of Prescribed Burning on Physical Properties of Soil. In Prescribed Burning Proceedings. U.S. Department of Agriculture, Forest Service, Southeast Station.

Ratzlaff, T.D. and J.E. Anderson. 1995. Vegetal Recovery following Wildfire in Seeded and Unseeded Sagebrush Steppe. Journal of Range Management 48:386-391.

Robichaud, P. R., J. L. Beyers, and D. G. Neary. 2000. Evaluating the Effectiveness of Postfire Rehabilitation Treatments. USDA Forest Service, Rocky Mountain Research Station, General Technical Report, GTR- RMRS -63.

Romin, L.A. and J.A. Muck. 2002. Utah Field Office Guidelines for Raptor Protection Proximal to Disturbances from Land Use Activities. Unpublished Final Report, Utah Field Office, U.S. Fish and Wildlife Service, Salt Lake City, Utah.

Romme W. H., L. Floyd-Hanna, and D. Hanna. 2002. Ancient Pinyon-Juniper Forest of Mesa Verde and the West: A Cautionary Note for Forest Restoration Programs. Available from: http://www.fs.fed.us/rm/pubs/rmrs_p029/rmrs_p029_335_350.pdf. [Accessed October 8,2004]

Rondeau, R. 2001. Ecological System Viability Specifications for Southern Rocky Mountain Ecoregion. Available from: http://www.cnhp.colostate.edu/.

Rude, Trisha and Anne Trinkle Jones. No Date. Fire Effects to Prehistoric Ceramics (DRAFT). Kevin C. Ryan and Anne Trinkle Jones. Eds. IN: Wildland Fire in Ecosystems: Effects of Fire on Cultural Resources and Archeology. Rainbow series, Rocky Mountain Research Station, USDA Forest Service. In press.

Sandberg, D., R. Ottmar, J. Peterson, and J. Core. 2002. Wildland Fire in Ecosystems: Effect of Fire on Air. Gen. Tech. Rep. RMRS-GTR-42-vol. 5. USDA Forest Service, Rocky Mountain Research Station, Ogden, UT. 79p.

Scher, J. S. 2002. *Juniperus scopulorum*. In: Fire Effects Information System (FEIS). USDA, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available from: http: // www.fs.fed.us / database / feis /. [Accessed August 2004].

Shackley, M. and Steven and Carolyn Dillian. 2002. Thermal and Environmental Effects on Obsidian Geochemistry: Experimental and Archaeological Evidence. J. M. Loyd, T. M. Origer, and D. A. Fredrickson eds. IN: The Effects of Fire and Heat on Obsidian. Bureau of Land Management, Cultural Resources Publication, Bishop Field Office, CA.

Silverman, A. 1993. Appropriate Risks for Recreation in Wildlands. Proceedings: Symposium on Fire in Wilderness and Park Management. Missoula, MT. March 30-April 1, 1993.

Solomon, M. 2002. Fire and Glass: Effects of Fire on Obsidian Hydration Bands. J. M. Loyd, T. M. Origer, and D. A. Fredrickson eds. IN: The Effects of Fire and Heat on Obsidian. Bureau of Land Management, Cultural Resources Publication, Bishop Field Office, CA.

Smith, J. K. ed. 2000. Wildland Fire in Ecosystems: Effects of Fire on Fauna. Gen. Tech. Rep. RMRS-GTR-42-vol. 1. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. Ogden, UT. pp 83 p.

Summerfield, H. B., R. L. Miles, S. G. Leonard, and R. L. Everett. 1986. Edaphic Relationships in Climax Singleleaf Pinyon Stands of Western Nevada. Research Note INT-364. USDA, Forest Service, Intermountain Research Station. [2293]. Ogden, UT.

Summerfield, H. B. 1976. Effects of Prescribed Burning on Watershed Conditions. In Use of Prescribed Burning in Western Woodland and Range Ecosystems. A symposium, 43-46. Logan, UT: Utah State University.

Tratebas, A. 2004. Rock Art and Fire. PowerPoint presentation. Available at: http://www.blm.gov/heritage/powerpoint/Alice_Tratebas_firearch2_files/frame.htm.

Trlica, M. J. 1977. Distribution and Utilization of Carbohydrate Reserves in Range Plants, p. 73-96. IN: Ronald E. Sosebee, and 9 others. Rangeland plant physiology. Soc. for Range Manage. Denver, CO.

UDEQ. 2004. Division of Water Quality. [Online]. Available from: http://waterquality.utah.gov/. [Accessed August 2004]. [Accessed September 2004]

UDAQ. 2004b. Regional Haze State Implementation Plan (SIP). Utah Interagency Smoke Mgmt, 2004. Available from: http://www.airquality.utah.gov/SIP/Regionalhazesip/regionalhaze.htm. [Accessed October 2,2004]

UDAQ. 2004c. Hazardous Air Pollutants (HAPs) Section Home. Available from: http://www.airquality.utah.gov/HAPS/index.htm[Accessed October 1,2004]

UDNR. (Utah Division of Natural Resources). 2002. Community Fire Planning for Wildland / Urban Interface: Guidance Document. Division of Forestry, Fire, and State Lands, Salt Lake City, Utah. February 2002.

Unemployment Rate for States, and Public Data Queries, US Department of Labor, Bureau of Labor Statistics. Available from: http://www.bls.gov/lau/home.htm. [Accessed September 9, 2004]

U.S. Census Bureau: Annual Projections of the Total Resident Population—1990 to 2100. Available from: http://www.census.gov/population/www/projections/natsum-T1.html. [Accessed September 21, 2004]

U.S. Census Bureau: State and County QuickFacts. Data Derived from Population Estimates, 2000 Census of Population and Housing, 1990 Census of Population and Housing, Small Area Income and Poverty Estimates, County Business Patterns, 1997 Economic Census, Minority- and Women-Owned Business, Building Permits, Consolidated Federal Funds Report, 1997 Census of Governments. Available from: http://quickfacts.census.gov/qfd/states/49000.html. [Accessed August 9, 2004]

USDA. 1994. General soils (STATSGO). Available at: http://www.fgdl.org/metadata/fgdc_html/gsoils.fgdc.htm. [Accessed September 2004].

USDA Forest Service. 1997. Rangeland Resource Trends in the United States. Chapter Three. Available from: http://www.fs.fed.us/rm/pubs/rmrs_gtr68b.pdf

USDA. 2002a. Howard, Janet L. 1999. *Artemisia tridentata ssp. wyomingensis*. In: Fire Effects Information System (FEIS). USDA Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available from: http: / / www.fs.fed.us / database / feis /. [Accessed August 2004].

USDA. 2002b. Tirmenstein, D. 1999. *Artemisia tridentata spp. tridentata.* In: Fire Effects Information System (FEIS) USDA Forest Service. Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available from: http//www.fs.fed.us/database/feis/. [Accessed August 2004].

USDA. 2002e. Johnson, Kathleen A. 2000. *Artemisia tridentata spp. vaseyana*. In: Fire Effects Information System (FEIS). USDA, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/. [Accessed August 2004].

USDA. 2002i. Howard, Janet L. 1996. *Populus tremuloides*. In: Fire Effects Information System, (FEIS). USDA, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/. [Accessed August 2004].

USDA. 2003. Recreation Research Update. Special Fire Issue. U. S. Forest Service, Pacific Southwest Research Station, Wildland Recreation and Urban Cultures, Riverside, CA. 2p.

U.S. Fish and Wildlife Service. FWS Critical Habitat for Threatened and Endangered Species. Available: http://criticalhabitat.fws.gov. [Accessed September 15,2004].

U.S. Geological Survey. 2002. Precipitation History of the Colorado Plateau Region, 1900-2000. Fact Sheet 119-02. [Online]. Available from: http://geopubs.wr.usgs.gov/fact-sheet/fs119-02/. [Accessed August 2004].

Utah Automated Geographic Reference Center (AGRC). Available at http://agrc.utah.gov. [Accessed August 27, 2004]

UDAQ. (Utah Division of Air Quality). 2004a. State Implementation Plan Sections' Descriptions and Text. Available from: http://www.airquality.utah.gov/SIP/Sipcomp.htm. [Accessed August 17, 2004].

UDWR. (Utah Division of Natural Resources). 2004. [Online]. Available from: http://dwrcdc.nr.utah.gov/rsgis2/Search/SearchSelection.asp?Group=MAMMALIA&Species=VE.

UDWR. (Utah Division of Natural Resources). Available at http://dwrcdc.nr.utah.gov/ucdc. [Accessed Sept 2, 2004]

Utah Geological Survey. 2000. Survey Notes. v.32, no.1. [Online]. Available from: http://geology.utah.gov/surveynotes/gladasked/gladtopoform.htm. [Accessed August 2004].

Utah Interagency Smoke Management. 2004. Utah Interagency Smoke Management Program. Available from: http://www.utahsmp.net. [Accessed August 17, 2004].

Utah Outdoor Activities. 2004. Internet Web Site: http://www.utahoutdooractivities.com/blm/html. [Accessed August 5, 2004]

Utah State Historical Society. 2004. The Land. [Online]. Available from: http://historytogo.utah.gov/land.html. [Accessed August 2004].

Valentine, K. A. and J. B. Gerard. 1968. Life-History Characteristics of the Creosotebush, *Larrea tridentata*. New Mexico State Univ. Agr. Exp Sta. Bull. 526. 32

Waechter, S. A. No Date. Big Fire, Small Fire: the Effects of Burning on Flaked Stone Artifacts. Available at: http://www.indiana.edu/~e472/cdf/fire/BigSmall/

Welsh, S.L., N. D. Atwood, S. Goodrich, and L.C. Higgins. 1993. A Utah Flora. Second edition. Brigham Young University Press. Provo, Utah.

West, N. E. and M. A. Hassan. 1985. Recovery of Sagebrush-Grass Vegetation Following Wildfire. J.Range Manage. 38(2): 131-134.

Whisenant, S.G. 1990. Changing Fire Frequencies on Idaho's Snake River Plains: Ecological and Management Implications. pp 4-10. IN: E. D. McArthur, E. M. Romney, S. D. Smith and P. T. Tueller (eds) Proceedings of a Symposium on Cheatgrass Invasion, Shrub Die-off, and Other Aspects of Shrub Biology and Management. U.S. Forest Service Gen. Tech. Rep. INT-276. Intermountain Forest and Range Experiment Station, Ogden, UT.

Whitson T., L. C. Burrill, S. A. Dewey (and others) 1991. Weeds of the West. University of Wyoming Press, Jackson WY. 630p

Wildland Fire Leadership Council, 2003. Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy. U. S. Department of Agriculture and U. S. Department of Interior, Washington, D.C. June 20, 2003.

Wiltz, L. K. No Date. Effects of Wildland Fire on Cultural Resources. National Interagency Fire Center, Communicator's Guide. Available at: http:www.nifc.gov/preved/comm._guide/wildfire/fire_10.html.

Winward, A. 1991. Management in Sagebrush Steppe. Oregon Agricultural Experiment Station. Special Report 880. Oregon State Univ. in cooperation with Agricultural Research Service, U. S. department of Agriculture. Corvallis, OR.

Winward, A. et al. 1997. Vegetation Types of the Wasatch-Cache National Forest. Compilation of Keys to Habitat and Vegetation Types.

Winward, A. 2004. Personal communication. USDA Forest Service Regional Ecologist [retired] with Maxim Technologies, Salt Lake City, Utah.

Wood, B.W. and J.D. Brotherson. 1986. Ecological Adaptation and Grazing Response of Budsage (*Artemisia spinescens*) in Southwestern Utah. IN: McArthur, E.D. and B.L. Welch, comps. Proceedings--symposium on the biology of Artemisia and Chrysothamnus. Provo, UT. General Technical Report INT-200. July 9-13, 1984. U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station, Ogden, UT. pp. 75-92.

Wright, H.A. and A.W. Bailey. 1982. Fire Ecology: United States and Southern Canada. John Wiley and Sons, Inc. New York, NY.

Wright, H. A., L. F. Neuenschwander, and C. M. Britton. 1979. The Role and Use of Fire in Sagebrush-Grass and Pinyon-Juniper Plant Communities: A State-of-the-Art Review. USDA Forest Service General Technical Report INT-58, Intermountain Forest and Range Experiment Station, Ogden, UT.

Wyoming Interagency Vegetation Committee, 2002. Wyoming Guidelines for Managing Sagebrush Communities with Emphasis on Fire Management. Wyoming Game and Fish Department and Wyoming BLM. Cheyenne, WY. pp. 53

Zeveloff, S. and F. Collette. 1988. Mammals of the Intermountain West. University of Utah Press, Salt Lake City, Utah. pp. 288-290.

Zlatnik, Elena. 1999. *Juniperus osteosperma.* In: Fire Effects Information System, (FEIS). U.S. Department of Agriculture, Forest Service Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available from: http//www.fs.fed.us/database/feis/. [Accessed August 2004].

Zouhar, Kris. 2003. *Bromus tectorum*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available from: http://www.fs.fed.us/database/feis/. [Accessed August 2004].

6.2 GLOSSARY

Agency	Any federal, state, or county government organization participating with jurisdictional responsibilities.
Air Quality	The characteristics of the ambient air (all locations accessible to the general public) as indicated by concentrations of the six air pollutants for which national standards have been established (e.g., particulate matter, sulphur dioxide, nitrogen dioxide, ozone, carbon monoxide, and lead), and by visibility in mandatory Federal Class I areas. For the purposes of the Utah Smoke Management Plan, concentrations of particulate matter are taken as the primary indicators of ambient air quality.
Alternative	One of at least two proposed means of accomplishing planning objectives.
Ambient Air	Literally, the air moving around us; the air of the surrounding outside environment.
Analysis	The examination of existing and/or recommended management needs and their relationships to discover and display the outputs, benefits, effects, and consequences of initiating a Proposed Action.
Appropriate Management Response	Specific actions taken in response to a wildland fire to implement protection and fire use objectives. Responses range from full suppression to managing fire for resource benefits (fire use).
Area of Critical Environmental Concern	An area of public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and provide safety from natural hazards.
Aspect	Direction toward which a slope faces.
Assessment	The act of evaluating and interpreting data and information for a defined purpose.
Biological Treatment	Biological treatment of vegetation could typically employ grazing by cattle, sheep, or goats, but as technology progresses, it may also include insects, but would not include the use of invertebrates or microorganisms.
Biomass	The dry weight of plants in a unit area.
Brush	A collective term that refers to stands of vegetation dominated by shrublands, shrubby woody plants, or low-growing trees.
Buffer Zones	An area of reduced vegetation that separates wildland from vulnerable residential or business developments or other high-value areas. This barrier is similar to a greenbelt in that it is usually used for another purpose such as agriculture, recreation areas, parks, or golf courses.

Burning Conditions: The state of the combined factors of the environment – such as winds, temperature, fuel moistures, and humidity – that affect fire behavior in a specified fuel type.

Burning Index An estimate of the potential difficulty of fire containment as it relates to the flame length at the most rapidly spreading portion of a fire's perimeter.

Burning Period That part of each 24-hour period when fires spread most rapidly, typically from 10:00 a.m. to sundown.

Cabling Same as chaining, except a cable is used instead of an anchor chain (see chaining).

Chaining The process of modifying vegetation by pulling an anchor chain between two crawler tractors, thus reducing tall-growing, brittle vegetation and enhancing grasses, forbs, and sprouting shrubs.

Chemical Treatment The use of herbicide to control herbaceous and woody species. BLM will use EPA-approved herbicides in accordance with EPA's Endangered Species Pesticide Program covered in BLM's *Vegetation Treatment on BLM Lands in Thirteen Western States FEIS* (May 1991).

Clean Air Act A federal law enacted to insure that air quality standards are attained and maintained. Initially passed by Congress in 1963, it has been amended several times, the latest being August of 1977.

Climax A terminal stage of ecological succession in which the vegetation association remains stable over a relatively long period.

Closure Legal restriction – but not necessarily elimination – of specified activities such as smoking, camping, or entry that might cause fires in a given area.

Collaboration A cooperative process in which interested parties, often with widely varied interests, work together to seek solutions with broad support, for managing public and other lands.

Composition The numbers and kinds of plants and animals in an area.

Condition Class Associated with Fire Regime in this document. A fire regime condition class (FRCC) is a classification of the amount of departure from the natural regime. The three classes are based on low (FRCC 1), moderate (FRCC 2), and high (FRCC 3) departure from the central tendency of the natural (historical) regime. See: www.frcc.gov.

Criteria Pollutants Air pollutants designated by the Environmental Protection Agency as potentially harmful and for which ambient air standards have been set to protect the public health and welfare. The criteria pollutants are carbon monoxide, sulfur dioxide, particulate, nitrogen dioxide, ozone, hydrocarbons and lead.

Critical Habitat Federally-mandated (under the Endangered Species Act of 1973, as amended) designation for threatened or endangered species that is proposed, designated, and managed by the U.S. Fish and Wildlife Service.

Critical Seasonal Use Area	Designation provided by the Utah Division of Wildlife Resources for the most important / valuable big game seasonal use areas in the state that they manage.
Crown Fire (Crowning)	The movement of fire through the crowns (top) of trees or shrubs more or less independently of the surface fire.
Cultural Resources	Those resources of historical, archaeological, or paleontological significance. Non-renewable elements of the physical and human environment including archaeological remains (evidence of prehistoric or historic human activities) and sociocultural values traditionally held by ethnic groups (sacred places, traditionally used raw materials, etc.).
Cumulative Effects	Cumulative effects result from the impacts of past, present, and reasonably foreseeable future activities combined with the projected direct and indirect effects of each alternative considered.
Direct Effects	Direct effects are those consequences that are expected to occur following implementation of an alternative. Direct effects are caused by the action and occur at the same time and place as the action.
Disturbance	Any relatively discrete event, either natural or human-induced that causes a change in the existing condition of an ecological system.
Ecosystem	An arrangement of organisms defined by the interactions and processes that occur between them. Ecosystems are often defined by their composition, function, and structure.
Ecosystem Sustainability	The ability to sustain diversity, productivity, resilience to stress, health, renewability, and/or yields of desired values, resource uses, products, or services from an ecosystem while maintaining the integrity of the ecosystem over time.
Emergency Stabilization and Restoration	Planned actions to stabilize and prevent unacceptable degradation to natural and cultural resources after unplanned wildfires.
Emission	Pollutants released to the atmosphere from any combustion process. Sometimes used synonymously with effluent, but is more applicable to atmospheric discharges.
Endangered Species	Any animal or plant species in danger of extinction in a portion of its range. This is a federal designation (under the Endangered Species Act of 1973 as amended). Most of these species fall under the jurisdiction of the U.S. Fish and Wildlife Service.
Endemic	A species restricted to a given geographical location and which is native to that locale.
Environment	All that surrounds an organism and interacts with it.
Environmental Assessment (EA)	EAs were authorized by the National Environmental Policy Act (NEPA) of 1969. They are concise, analytical documents prepared

with public participation that determine whether an Environmental Impact Statement (EIS) is needed for a particular project or action. If an EA determines an EIS is not needed, the EA becomes the document allowing agency compliance with NEPA requirements.

Environmental Impact Statement (EIS) — EISs were authorized by the National Environmental Policy Act (NEPA) of 1969. Prepared with public participation, they assist decision makers by providing information, analysis, and an array of action alternatives, allowing managers to see the probable effects of decisions on the environment. Generally, EISs are written for large-scale actions or geographical areas.

Environmental Justice — The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic group should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of Federal, state, local, and tribal programs and policies.

Ephemeral — A stream that flows only in direct response to precipitation, and whose channel is above the water table at all times.

Fine (Light) Fuels — Fast-drying fuels, generally with a comparatively high surface area-to-volume ratio, which is less than ¼-inch in diameter and has a time lag of one hour or less. These fuels readily ignite and are rapidly consumed by fire when dry.

Fire Intensity — A general term relating to the heat energy released by a fire.

Fire Management — Fire management refers to the full spectrum of activities including: fire suppression, wildland fire use, prescribed fire, non-fire fuels treatment, and emergency stabilization and rehabilitation.

Fire Management Area — A sub-geographic area within an FMU that represents a predefined acceptable management area for a fire managed for resource benefits. This predefined area can constitute a Maximum Manageable Area (MMA) and is useful for those units having light fuel types conducive to very rapid spread rates. Predefinition of these areas removes the time-lag in defining an MMA after ignition and permits preplanning of the fire area; identification of threats to life and property, resources, and boundaries; and identification of initial actions.

Fire Management Plan (FMP) — A FMP is a functional activity plan for the fire management program. The FMP is the primary tool for translating programmatic direction developed in the land management plan into on-the-ground action. The FMP synthesizes broad fire management goals and places them into a strategic context. Criteria for making initial action decisions must be a component of the FMP.

Fire Management Unit (FMU) — Any land management area definable by objectives, topographic features, access, values-to-be-protected, political boundaries, fuel types, or major fire regimes, etc., that set it apart from management characteristics of an adjacent unit. FMUs are delineated in FMPs. These units have dominant management objectives and preselected strategies assigned to accomplish these objectives.

Fire Regime — The fire pattern across the landscape, characterized by occurrence interval and relative intensity. Fire regimes result from a unique combination of climate and vegetation. Fire regimes exist on a continuum from short-interval, low-intensity fires to long-interval, high-intensity fires. The five natural (historical) fire regimes are classified based on average number of years between fires (fire frequency) combined with the severity (amount of replacement) of the fire on the dominant overstory vegetation. These five regimes include:

- I – 0-35 year frequency and low (surface fires most common) to mixed severity (less than 75% of the dominant overstory vegetation replaced);
- II – 0-35 year frequency and high (stand replacement) severity (greater than 75% of the dominant overstory vegetation replaced);
- III – 35-100+ year frequency and mixed severity (less than 75% of the dominant overstory vegetation replaced);
- IV – 35-100+ year frequency and high (stand replacement) severity (greater than 75% of the dominant overstory vegetation replaced);
- V – 200+ year frequency and high (stand replacement) severity. (See www.frcc.gov)

Fire Return Interval — The number of years between two successive fires in a designated area.

Fire Season — 1) Period(s) of the year during which wildland fires are likely to occur, spread, and affect resource values sufficient to warrant organized fire management activities. 2) A legally enacted time during which burning activities are regulated by state or local authority.

Fire Severity — Fire severity is a product of fire intensity and residence time at a site. Severity denotes the effects, from low to high, of fire on the soil and vegetation components of a site.

Fire Use — The combination of wildland fire use and prescribed fire application to meet resource objectives.

Fireline — A linear fire barrier that is cleared of fuels and scraped or dug to mineral soil. Also called control line, containment line or line.

Forage — Vegetation of all forms available and of a type used for animal consumption.

Forbs	Plants with soft, rather than permanent, woody stems that are not grass or grass-like plants.
Forest Products	Woodland and timber products, such as posts, poles, firewood, Christmas trees, and sawlogs.
Fuel	A combustible material, including vegetation such as grass, leaves, ground litter, plants, shrubs, and trees that feed a fire. (See Surface Fuels.)
Fuel Reduction	Manipulation, including combustion and/or or removal of fuels to reduce the likelihood of ignition and/or to lessen potential damage and resistance to control.
Fuels Management	The practice of evaluating, planning, and executing the treatment of wildland fuel to control flammability and reduce the resistance to control through mechanical, chemical, biological, or manual means, or by prescribed and wildland fire, in support of land management objectives.
Fuel Type	An identifiable association of fuel elements of a distinctive plant species, form, size, arrangement, or other characteristics that will cause a predictable rate of fire spread or difficulty of control under specified weather conditions.
Full Fire Suppression	The full suppression of wildfires with whatever combination of manpower, equipment, and judgment is required.
Geographic Area	A political boundary designated by the wildland fire protection agencies, where these agencies work together in the coordination and effective utilization of resources. See www.fs.fed.us/fire/reports.shtml for a listing of and links to Geographic Area Coordination Centers.
Goal	A concise statement that describes a desired condition to be achieved sometime in the future. It is normally expressed in broad, general terms (usually not quantifiable) and is timeless in that it has no specific date by which it is to be completed. Goal statements form the principle basis from which objectives are developed.
Grazing Permit	An authorization that allows grazing on public lands. Permits specify class of livestock on a designated area during specified seasons each year. Permits are of two types: preference (10 year) and temporary non-renewable (1 year).
Ground Fuel	All combustible materials below the surface litter (including duff, tree or shrub roots, punchy wood, peat, and sawdust) that normally support a glowing combustion without flame.
Guideline	Actions or management practices that may be used to achieve desired outcomes, sometimes expressed in Best Management Practices (BMPs). Guidelines may be identified during the land use planning process, but they are not considered a land use decision unless the plan specifies that they are mandatory. Guidelines for grazing administration must conform to 43 CFR 4180.2
Habitat	A specific set of physical conditions in geographical area(s) that surround a single species, a group of species, or a large

community. In wildlife management, the major components of habitat are: food, water, cover and living space.

Historic and Cultural Sites (43 CFR 2071.1) — Sites of major historical and cultural significance, national, regional, or local. These are usually small tracts of land containing significant evidence of American history, such as battlegrounds, mining camps, cemeteries, pioneer trails, and trading posts; or lands that contain significant evidence of prehistoric life such as pictographs, petroglyphs, burial grounds, prehistoric structures, middens, fossils, paleontological remains, and any other evidences of prehistoric life forms.

Implementation Plan — A sub-geographic or site-specific plan written to implement decisions made in a land use plan. Implementation plans include both activity plans and project plans.

Incident — A human-caused or natural occurrence, such as wildland fire, that requires emergency service action to prevent or reduce the loss of life or damage to property or natural resources. Incident management teams also handle other non-fire emergency response, including tornadoes, floods, hurricanes, earthquakes, and other disasters or large events.

Indirect Effects — Indirect effects are those consequences, which are expected to occur following implementation of an alternative. Indirect effects are caused by the action and occur later in time or farther from the activity.

Interdisciplinary Team — A team representing several disciplines to ensure coordinated planning of the various resources.

Intermittent or seasonal — A stream that flows only at certain times of the year when it receives water from springs or from some surface source such as melting snow in mountainous areas.

Ladder Fuels — Fuels which provide vertical continuity between strata and allow fire to carry from surface fuels into the crowns of trees or shrubs with relative ease. They help initiate and assure the continuation of crowning.

Land Use Plan — A set of decisions that establish management direction for land within an administrative area. An assimilation of land-use-plan-level decisions developed through the planning process outlined in 43 CFR 1600, regardless of the scale at which the decisions were developed. The term includes both RMPs, MMPs, and MFPs.

Landscape — An area of interacting and interconnected patterns of habitats (ecosystems) that are repeated because of the geology, land form, soil, climate, biota, and human influences throughout the area. Landscape structure is formed by disturbance events, successional development of landscape structure, and flows of energy and nutrients through the structure of the landscape. A landscape is composed of watersheds and smaller ecosystems. It is the building block of biotic provinces and regions.

Large Fire	1) For statistical purposes, a fire burning more than 100 acres. 2) A fire burning with a size and intensity such that its behavior is determined by interaction between its own convection column and weather conditions above the surface.
Light (Fine) Fuels	Fast-drying fuels, generally with a comparatively high surface area-to-volume ratio, which is less than ¼-inch in diameter and has a timelag of one hour or less. These fuels ignite readily and are rapidly consumed by fire when dry.
Limited Fire Suppression	This is a wildfire suppression action that recognizes that fire in certain areas is: (1) extremely difficult to suppress (hazardous to fire-fighting personnel or suppression operation including aircraft); (2) the resource value threatened does not warrant the expense associated with a full suppression action.
Litter	Top layer of the forest, scrubland, or grassland floor, directly above the fermentation layer, composed of loose debris of dead sticks, branches, twigs, and recently fallen leaves or needles, little altered in structure by decomposition.
Long-term	Defined in this document as 10 years or more. This applies to any long-term use.
Management Concern	An issue, problem, or condition that constrains the range of management practices identified by the Forest Service in the planning process.
Management Direction	A statement of multiple-use and other goals and objectives, associated management prescriptions, and standards and guidelines for attaining them.
Management Framework Plan	A land use plan for public lands administered by BLM that provides a set of goals, objectives, and constraints for a specific planning unit or area; a guide to the development of detailed plans for the management of each resource. This form of plan is now being replaced with Resource Management Plans.
Management Practice	A specific activity, measure, course of action, or treatment.
Mechanical Treatment	Mechanical treatments of vegetation employ several different types of equipment to suppress, inhibit, or control herbaceous and woody vegetation. For the purposes of this plan, mechanical treatments may include employing the following: cabling, chaining, disking (or disk plowing), bulldozing, mowing, beating, crushing, chopping or shredding vegetation using a variety of mechanized equipment.
Monitoring (Plan Monitoring)	The process of tracking the implementation of land use plan decisions and collecting and assessing data and/or information necessary to evaluate the effectiveness of land use planning decisions.

National Ambient Air Quality Standards — Standards for maximum acceptable concentrations of pollutants in the ambient air to protect public health with an adequate margin of safety, and to protect public welfare from any known or anticipated adverse effects of such pollutants (e.g., visibility impairment, soiling, materials damage, etc.) in the ambient air.

National Environmental Policy Act (NEPA) — NEPA is the basic national law for protection of the environment, passed by Congress in 1969. It sets policy and procedures for environmental protection, and authorizes Environmental Impact Statements and Environmental Assessments to be used as analytical tools to help federal managers make decisions on management of federal lands.

Native Range — Those rangelands that support natural vegetation as opposed to reseeded ranges which usually contain introduced vegetation.

Natural Ignition — A wildland fire ignited by a natural event, such as lightning.

Naturalness — An area which "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable". (Section 2[c], *Wilderness Act*).

Nonattainment Area — An area which is shown by monitored data or which is calculated by air quality modeling (or other methods determined by the Administrator, EPA to be reliable) to exceed any National Ambient Air Quality Standard for such pollutant and includes any area designated as nonattainment under 42 USC 7407.

Non-fire fuel treatments — Includes manual, mechanical, biological, chemical, and seeding actions.

Objective — A concise, time-specific statement of measurable planned results that respond to pre-established goals. An objective forms the basis for further planning to define the precise steps to be taken and the resources to be used in achieving identified goals.

Off-road Vehicle — Any motorized vehicle designated for or capable of cross-country travel over lands, water, sand, snow, ice, marsh, swampland, or other terrain excluding: (1) any nonamphibious registered motorboat; (2) any military, fire, emergency, or law enforcement vehicle while being used for emergency purposes; (3) any vehicle whose use is expressly authorized by the authorized officer, or otherwise officially approved; (4) vehicles in official use; and (5) any combat or combat support vehicle used in national defense.

Old Growth — A wooded area, usually greater than 200 years of age, which has never been altered or harvested by humans. An old-growth forest often has large individual trees, a multi-layered crown canopy, and a significant accumulation of coarse woody debris including snags and fallen logs. Utah BLM will adopt the U.S. Forest Service (USFS) old-growth definitions and identification standards per the USFS document "Characteristics of Old-Growth Forests in the Intermountain Region" (April 1993). In instances where the area of application in the previous document does not apply to specific

species (e.g., *Pinus edulis*), use the document, "Recommended Old-Growth Definitions and Descriptions, UDSA Forest Service Southwestern Region" (Sept.1992).

Particulate Matter (PM) Any airborne finely divided material, except uncombined water, which exists as a solid or liquid at standard conditions (e.g., dust, smoke mist, fumes, or smog).

Perennial A stream that flows continuously. Perennial streams are generally associated with a water table in the localities through which they flow.

Permitted Use The forage allocated by, or under the guidance of, an applicable land use plan for livestock grazing in an allotment under a permit or lease; expressed in animal unit months (AUMs) (43 CFR 4100.0-5).

Planning Analysis A process using appropriate resource data and NEPA analysis to provide a basis for decisions in areas not yet covered by an RMP.

Planning Area One or more planning units for which Management Framework Plans were prepared under previous BLM planning procedures.

Planning Unit As used in previous BLM planning, a geographical unit within a BLM district. It included related lands, resources, and use pressure problems that were considered together for resource inventory and planning.

Plant Composition The mixture of plants found in a vegetation type or study area usually expressed in percents as related to all other plants.

PM 10 Particles with an aerodynamic diameter less than or equal to a nominal 10 micrometers (including PM 2.5).

PM 2.5 Particles with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.

Prescribed Fire Any fire ignited by management actions under certain predetermined conditions to meet specific objectives related to hazardous fuels or habitat improvement. A written prescribed fire plan must exist, and NEPA requirements must be met prior to ignition.

Prescription Measurable criteria that define conditions under which a prescribed fire may be ignited, guide selection of appropriate management responses, and indicate other required actions. Prescription criteria may include a combination of safety, economic, public health, environmental, geographic, administrative, social, or legal considerations.

Prevention Activities directed at reducing the incidence of fires, including public education, law enforcement, personal contact, and reduction of fuel hazards.

Proper Functioning Condition Riparian-wetland areas are functioning property when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high waterflows, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid floodplain development; improve floodwater

	retention and groundwater recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity. The functioning condition of riparian-wetland areas is influenced by geomorphic features, soil, water, and vegetation. Uplands function property when the existing vegetation and ground cover maintain soil conditions capable of sustaining natural biotic communities. The functioning condition of uplands is influenced by geographic features, soil, water, and vegetation.
Public Lands	Any lands or interest in lands outside of Alaska owned by the United States and administered by the Secretary of the Interior through the BLM, except located on the Outer Continental Shelf and lands held for the benefit of Indians.
Public Participation	The process of attaining citizen input into each planning document development stage. It is required as a major input into the BLM's planning system.
Range Improvements	
(Structural / Nonstructural)	Any activity or program on or relating to rangelands designed to improve forage production, change vegetation composition, control patterns of use, provide water, stabilize soil and water conditions, and enhance habitat for livestock, wildlife, and wild horses and burros. Rangeland improvements include non-structural land treatments (such as chaining, seeding, and burning), and structural (such as stockwater developments, fences, and trails).
Rangeland	Land dominated by vegetation that is useful for grazing and browsing by animals. "Range" and "rangeland" are used interchangeably.
Raptors	Birds of prey, such as the eagle, falcon, hawk, owl, or vulture.
Recreation Opportunities	Favorable circumstances enabling visitors' engagement in a leisure activity to realize immediate psychological experiences and attain more lasting, value-added beneficial outcomes.
Region	May be any geographical area larger than a planning area (Socio-Economic Profile Area, sub-State, State, Multi-State, or National), appropriate for comparative area analysis and for which information is available. Regions may be different for different resources or subject matter analysis.
***Regional* Haze**	Generally, concentrations of fine particles in the atmosphere extending up to hundreds of miles across a region and promoting noticeably hazy conditions; wide-spread visibility impairment, especially in mandatory Class I Federal areas where visibility is an important value.
Rehabilitation	The activities necessary to repair damage or disturbance caused by wildland fires or the fire suppression activity.

Research Natural Areas

(43 CFR 8223) This is an area that is established and maintained for the primary purpose of research and education because the land has one or more of the following characteristics: (1) A typical representation of a common plant or animal association; (2) an unusual plant or animal association; (3) a threatened or endangered plant or animal species; (4) a typical representation of common geologic, soil, or water features; or (5) outstanding or unusual geologic, soil, or water features.

Resource Area A geographic portion of a BLM district: An administrative subdivision whose manager has primary responsibility for day-to-day resource management activities and resource use allocations. In most instances it is the area for which Resource Management Plans are prepared and maintained.

Resource Management Plan

(RMP) A document prepared by field office staff with public participation and approved by field office managers that provides general guidance and direction for land management activities at a field office. The RMP identifies the need for fire in a particular area and for a specific benefit.

Resources 1) Personnel, equipment, services, and supplies available or potentially available for assignment to incidents. 2) The natural resources of an area, such as timber, grass, watershed values, recreation values, and wildlife habitat.

Retardant A substance or chemical agent which reduces the flammability of combustibles.

Riparian Habitat A native environment growing near streams, reservoirs, ponds, etc. that provides food, cover, water, and living space (permanent or intermittent). It is usually unique or limited in arid regions and is, therefore, of great importance to a wide variety of wildlife.

Seeding *(and Planting)* Involves the introduction of seeds and plants to a site that alters existing plant communities and influences successional processes.

Sensitive Species Species not yet officially listed but that are undergoing status review for listing on the Fish and Wildlife Service official threatened and endangered list; species whose populations are small and widely dispersed or restricted to a few localities; and species whose numbers are declining so rapidly that official listing may be necessary.

Severity Degree to which a site has been altered or disrupted by fire; loosely, a product of fire intensity and residence time (duration) of the fire. Severity denotes the effects, from low to high, of fire on the soil and vegetation components of a site.

Short-term Defined in this document as 1 to 5 years. This applies to any "short-term" use.

Slash	Debris left after logging, pruning, thinning, or brush cutting; includes logs, chips, bark, branches, stumps, and broken understory trees or brush.
Smoke Management	Conducting a prescribed fire under fuel moisture and meteorological conditions, and with firing techniques that keep the smoke's impact on the environment within acceptable limits.
Smoke Management Program (SMP)	Establishes a basic framework of procedures and requirements for managing smoke from fires that are managed fore resource benefits. The purposes of SMPs are to mitigate the nuisance and public safety hazards (e.g., on roadways and at airports) posed by smoke intrusions into populated area; to prevent deterioration of air quality and NAAQs violations; and to address visibility impacts in mandatory Class I Federal areas in accordance with the regional haze rules.
Soil Compaction	Increasing the soil bulk density, and concomitantly decreasing the soil porosity, by the application of mechanical forces to the soil.
Soil Disturbance	Physical disturbance of the vegetation or soil surface by any action, usually via mechanical or manual tools. Includes all activities except casual use, wildland fire and prescribed fire treatments. See "surface disturbance."
Special Recreation Management Areas	Recreation management areas that receive emphasis and priority in BLM's recreation planning and management efforts. The recreation resources in these areas require explicit management to provide specified recreation setting, activity, and experience opportunities. Recreation management objectives will provide explicit guidelines with respect to the existing opportunities and problems in these areas. Recreation Management Plans will subsequently be prepared for special recreation management areas using RMP objectives for guidance.
***Special Status* Species**	Includes proposed species, listed species, and candidate species under the Endangered Species Act; state-listed species; and BLM state director-designated sensitive species (see BLM Manual 6840, Special Status Species Policy).
Standard	Forest plan standards describe a condition of land, normally a maximum or minimum condition, which is measurable. A standard can also be expressed as a constraint on management activities or practices. Deviation from compliance with a standard requires a forest plan amendment.
State Implementation Plan	A Clean Air Act required document in which States adopt emission reduction measures necessary to attain and maintain NAAQS, and meet other requirements of the Act.
State *Lands*	Lands controlled or administered by the State of Utah.
Strategy	The science and art of command as applied to the overall planning and conduct of an incident.

Structure	The sizes, shapes, and/or ages of the plants and animals in an area.
Succession	Observed process of change in the species structure (and composition) of an ecological community over time.
Suppression	A management action intended to extinguish a fire or alter its direction of spread.
Subsoiling	Any treatment to non-invasively loosen soil below the Ap horizon with a minimum of vertical mixing of the soil. Any treatment to fracture and/or shatter soil with narrow tools below the depth of normal tillage without inversion and with a minimum mixing of the soil. This loosening is usually performed by lifting action or other displacement of soil dry enough so that shattering occurs.
Surface Disturbance	Any surface disturbing activity (does not include fire).Disturbance of the vegetative or soil surface by any action. Includes all activities but casual use and wildland fire or fire treatments. See "soil disturbance."
Surface Fuels	Loose surface litter on the soil surface, normally consisting of fallen leaves or needles, twigs, bark, cones, and small branches that have not yet decayed enough to lose their identity; also grasses, forbs, low and medium shrubs, tree seedlings, heavier branchwood, downed logs, and stumps interspersed with or partially replacing the litter.
Sustainability	The ability to maintain a desired condition or flow of benefits over time.
Tactics	Deploying and directing resources on an incident to accomplish the objectives designated by strategy.
Total Maximum Daily Load	An estimate of the total quantity of pollutants (from all sources: point, nonpoint, and natural) that may be allowed into waters without exceeding applicable water quality criteria.
Values At Risk	To rate according to a relative estimate of worth when exposed to a chance of loss or damage.
Vegetation Treatment	Changing the characteristics of an established vegetation type to improve rangeland forage or wildlife habitat resources. Treatments are designed for specific areas and differ according to the area's suitability and potential. The most common land treatment methods alter the vegetation by chaining, spraying with herbicides, burning, and plowing, followed by seeding with well adapted desirable plant species.
Vegetation	Plants in general or the sum total of the plant life above and below ground in an area.
Visibility	The greatest distance in a given direction where it is possible to see and identify with the unaided eye a prominent dark object against the sky at the horizon.
Visual Resource Management	Management classes are determined on the basis of overall scenic quality, distance from travel routes, and sensitivity to

change. *Class I:* Provides primarily for natural ecological changes only. It is applied to wilderness areas, some natural areas, and similar situations where management activities are to be restricted. *Class II:* Changes in the basic elements caused by a management activity should not be evident in the characteristic landscape. A contrast may be seen but should not attract attention. *Class III:* Changes in the basic elements caused by a management activity may be evident in the characteristic landscape, but the changes should remain subordinate to the visual strength of the character. *Class IV:* Changes may subordinate the original composition and character but must reflect what could be a natural occurrence within the characteristic landscape. *Class V:* Change is needed. This class applies to areas where the naturalistic character has been disturbed to a point where rehabilitation is needed to bring it back into character with the surrounding landscape.

Wetlands — Lands including swamps, marshes, bogs, and similar areas, such as wet meadows. They also include River overflows, mud flats, and natural ponds.

Wilderness Area — An area officially designated as wilderness by Congress. Wilderness areas will be managed to preserve wilderness characteristics and shall be devoted to the public purposes of recreation, scenic, scientific, educational, conservation, and historical use.

Wilderness Study Area — Areas under study for possible inclusion as a Wilderness Area in the National Wilderness Preservation System.

Wilderness — An area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitations.

Wildfire — A free-burning fire requiring a suppression response.

Wildland — Any area under fire management jurisdiction of a land management agency.

Wildland Fire Management Program — The full range of activities and functions necessary for planning, preparedness, emergency suppression operations, and emergency rehabilitation of wildland fires, and prescribed fire operations, including natural fuels management to reduce risks to public safety and to restore and sustain ecosystem health.

Wildland Fire Situation Analysis — A decision making process that evaluates alternative management strategies against selected criteria (e.g., safety, environmental, social, political, economic), and resource management objectives.

Wildland Fire Suppression — An appropriate management response to wildland fire that results in curtailment of fire spread and eliminates all identified threats from the particular fire. All wildland fire suppression activities provide for firefighter and public safety as the highest

consideration, but minimize loss of resource values, economic expenditures, and/or the use of critical firefighting resources.

***Wildland* Fire** — Any non-structure fire, other than prescribed fire, that occurs in the wildland.

Wildland Fire Use — The management of naturally ignited wildland fires to accomplish specific pre-stated resource management objectives in predefined geographic areas outlined in an FMP. Operational management is described in the WFIP. Wildland fire use is not to be confused with "fire use,", a broader term encompassing more than just wildland fires.

Wildland Urban Interface — The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. Because of their location these structures are extremely vulnerable to fire should an ignition occur in the surrounding area.

Woodland — Forest lands stocked with other than timber species (i.e. pinyon, juniper, mountain mahogany, etc.). A plant community in which, in contrast to a typical forest, the trees are often small, and relatively short compared to their crown (i.e., pinyon, juniper). Uses of the woodland products are generally limited to firewood, posts, and harvest of fruit (pinyon nuts).